EXHIBIT 2

Reply Declaration of Hooman Noorchashm MD, PhD. to Dr. Zervos Second Declaration

1. I have reviewed the rebuttal declaration of Professor Marcus Zervos, MD.

2. I will start this response by stating that Dr. Zervos is identified on the Wayne State University website as one of the co-principal investigators on the Moderna and Johnson and Johnson vaccine studies in Detroit. Though this may appear a reasonable credential, in my opinion, it does represent a potentially serious conflict of interest in this case, which may blind this expert to several very serious judgment errors and biases.

3. As an overall critique of Dr. Zervos's rebuttal, at the outset, it is critical that the Court be informed that the argument laid out by the Professor is internally inconsistent. While it: 1) attempts to disprove that COVID-19 specific antibodies in naturally immune persons like Ms. Norris are a powerful demonstration of immunity; in the same breath, 2) it claims that antibodies are important markers of immunity upon which all vaccine development trials, including the COVID-19 vaccine trials, rely to demonstrate the efficacy of immunization.

4. This is a very concerning and foundational logical error, which demonstrates Dr. Zervos's attempt at making a teleological argument in hoping to convince the court of a position that goes against fundamental immunological principles. Simply put, it is my opinion that with this 11th-hour rebuttal, the Professor has created a straw man to fool the Court into allowing Ms. Norris, and millions of already immune Americans like her, to be coerced into unnecessary vaccinations that would at most be only marginally beneficial (if they do not cause harm).

5. To be clear, Professor Zervos knows, or should know, that measurement of antibody serology is the "gold standard" for the assessment of *every* viral infection known to humankind. SARS-CoV-2 is no different.

6. In fact, Professor Zervos knows, or should know, that every clinical trial of the COVID-19 vaccines, including those for which he served as a co-principal investigator in Detroit, and even the recent studies involving assessment of the need for booster vaccines in the already vaccinated, have relied on assessment of COVID-19 Spike antibody serologies. How can it be that, suddenly, the stable presence of these antibodies in Ms. Norris's blood are not indication of immunity?

7. Additionally, Professor Zervos knows, or should know, that the inefficiency characteristics of the mRNA and Adenoviral COVID-19 vaccine are all based on the extent to which these vaccines can induce a measurable antibody response in clinical trials. This is the same antibody response that is being measured in Ms. Jeanna Norris's blood, and which can also be measured in the millions of other COVID-recovered and already immune Americans. These individuals are unwilling to undergo vaccination on the rational clinical/medical ground that they are almost certain to be robustly immune.

8. So, to even remotely suggest that the presence of these COVID-19 antibodies, in any patient, is not clear indication of immunity, is simply astonishing to hear from a professor of

infectious diseases at a reputable American medical center. In my opinion, this suggestion is a very concerning indication that Dr. Zervos is constructing a teleological argument to fit the wide-scale, "one-size-fits-all" application of a product he has helped develop and *believes in zealously*.

9. As an example, Professor Zervos states, "It is important to recognize that antibody testing is not recommended by the CDC or FDA to assess immunity, *as it is not possible using conventional antibody tests to determine whether a protective immune response has developed*." This core opening statement in the Zervos rebuttal forms the entire basis for his subsequent presentation to the Court. First, the italicized part of the statement is misleading. In fact, the COVID-19 antibodies tested, including the ones used to assess Ms. Norris's serologies, using "conventional" FDA-approved Labcorp tests (and the other ones Ms. Norris underwent at her own hospital), are virtually the same ones used in the clinical trials of the COVID-19 vaccines to demonstrate their efficacy. So, the Professor's claim that it is "not possible" to use the presence of these antibodies as a measure of immunity is *simply false—he knows that exactly this readout was used to assess the efficacy of the COVID-19 vaccines in inducing immunity, which his group helped study in the Detroit clinical trials*.

10. I find it very concerning that Professor Zervos insists on discrediting the epidemiological studies that point to equivalency or even superiority of natural infection over vaccination. His core critique is that these studies are "not peer reviewed"—or that they are retrospective and observational. Indeed, Professor Zervos himself refers to non-peer reviewed studies to support his arguments. That he attempts to discredit the reputable investigators who put their names to these studies in order to bolster his own narrative is disturbing to me.

11. Though some of these studies are published in the pre-peer review stage, every one of the studies is presented by highly reputable groups from around the US and Israel. While it is true that in this pandemic the peer review process is slow, randomized control trials (RCTs) take many years to perform and thus observational and retrospective studies looking at real world evidence are most feasible.

12. Indeed, much of what we have done during this pandemic has required "Mach speed" and careful intelligent prognostications. Certainly, the prevailing majority push/prejudice for blanket vaccination by the executive branch public health agencies has created inappropriate resistance to and prejudice against the speedy review and publication of many studies that deviate from the establishment's chosen narrative.

13. Yet, *every one* of the studies I listed in my declaration comes from a highly reputable group of scientists and clinicians, who publish their results in good faith. Accepting the opinion of public health officials and the institutional narrative cannot come at the expense of ignoring data and analyses performed by reputable clinicians and scientists who present a credible message based in real-world data. Is Dr. Zervos suggesting that all these groups are not credible, are overstating their conclusions, or are wrong?

14. Professor Zervos claims, "It is incorrect to say that reinfection is rare, as it has been reported in up to 10 percent of people with prior infection[.]" The 10% number is an exaggeration by

Dr. Zervos—and I believe he knows it. In my extensive discussions with colleagues at major medical centers around the nation, it is even anecdotally clear that the incidence of re-infection is exceedingly low.

15. I have reviewed the scope of the available epidemiology, and my prior declaration, indeed, indicates a very low rate of re-infection. In fact, a study from Harvard/CDC demonstrates that re-infection rates even in high-risk healthcare workers is only 0.2%—a far cry from Dr. Zervos' 10% number: https://pubmed.ncbi.nlm.nih.gov/34351392/.

16. But more critically, even granting him this exaggerated "10%" re-infection rate, Dr. Zervos knows or should know, that the starting-point "inefficacy rate" of the existing COVID-19 vaccines available in America ranges anywhere from 10-34%, depending on the brand under consideration. This inefficacy rate means that somewhere between 10-34% of persons who are fully vaccinated do not become immune and are thus susceptible to getting infected.

17. Even assuming that Dr. Zervos is correct that 10% of previously infected persons are susceptible to being re-infected, that number is still smaller (and likely much smaller) than the 10-34% expected failure rate for the vaccines. This difference again demonstrates a rather concerning attempt by the Professor to build a rhetorical straw man, to deceive the Court with pseudo-scientific argumentation against the well-established and recognized immunological process of acquired immunity from natural infection.

18. Dr. Zervos also states that "the vaccines MSU are [*sic*] accepting as evidence of immunization are endorsed for use by the WHO or FDA." Though this is true, nowhere does Professor Zervos acknowledge that the efficacy rates of some of these foreign vaccines "accepted" by MSU as evidence of immunity range from only 50% to 90%.

19. For instance, MSU accepts the Sinovac-CoronaVac vaccine as proof of immunity from its students and staff. This Chinese-made vaccine is well known to be only 50% effective. This means that only half of the MSU community members vaccinated with Sinovac are immune, yet these un-immune persons are able to enjoy all the benefits of freedom afforded by an administrative pass at MSU.

20. Meanwhile, Ms. Jeanna Norris, whom Professor Zervos claims has at most a 10% re-infection rate (i.e., failure of immunization from a natural infection), is being threatened with loss of her employment because of a failure to comply with an irrational edict. All this Dr. Zervos appears comfortable defending in a setting where the preponderance of evidence and reasonable clinical judgment indicate that Jeanna Norris is robustly immune and equivalently protected against subsequent infection, at least to the same extent as the least effective vaccine accepted by MSU.

21. Professor Zervos also claims that "some [naturally infected] patients do not develop an antibody response at all." While this may be true, it is likewise true for up to 50% of vaccinated persons, depending on the brand of vaccine, *e.g.* Sinovac-CoronaVac. In any event, this statement is totally irrelevant to Ms. Norris's situation, because she has a level of COVID-19 Spike antibody that has been stably present for months now.

22. As an immunologist, I was simply astonished to read Professor Zervos's comment that "the role of cellular (T and B cells) for COVID-19 prevention is not known." This is a totally false and ungrounded statement. It is a well-established basic principle of Immunology that IgG antibodies are made by B-cells and that their production requires robust T-cell priming and cognate T-B cell costimulation. In other words, any person, including Ms. Norris, with IgG antibodies against Spike protein or any other viral epitope, will have, by definition, mounted a B- and T-cell response to the virus. The fact that Dr. Zervos testifies to a scientific and clinical falsehood in this regard is simply shocking to me and causes me to doubt his competency in the fundamentals of cellular immunology.

23. Professor Zervos goes on to claim that in the case of Coronaviruses, "we also know that cellular immunity has little role in protection." I am not certain where Dr. Zervos has derived his opinion from. However, "cellular immunity" in immunological jargon refers to CD4 and CD8 T-cell responses, which are critical to the response elicited by Coronaviruses.

24. To state that these cells are not involved in the immune response to SARS-CoV-2 is yet another falsehood being presented to the Court by the Professor. A vast body of scientific basic studies demonstrate that both CD4 and CD8 T-cells mount a cellular response to SARS-CoV-2. In fact, a major component of the "cytokine storm" generated in COVID-19 patients who become critically ill is driven by hyperactivated T-cells.

25. Again, Dr. Zervos states, "There is clear evidence that the immune response in a vaccinated person is more robust than in someone with immunity from an infection." Here, in my opinion, the Professor is again conflating antibody levels with clinical efficacy, in an attempt to lead the Court into believing what the defense wishes it to believe. But, in his rebuttal, he has already conceded that antibody levels are not necessarily a surrogate for clinical benefit against subsequent infection.

26. Dr. Zervos also states that there is "variability" in the responsiveness to natural infection versus vaccine immunity. Though I agree that there is variability in antibody levels, this is also a characteristic of vaccine immunity. The clearest manifestation of the variability in vaccine immunity is that 10-50% of vaccinated persons are not adequately immune, depending on the brand of vaccine used.

27. Though Professor Zervos admits in his rebuttal that antibody levels are not necessarily the same as clinical protection from infection, he persists in his unsound attempt to lead the Court into believing that the amount of antibodies is a surrogate for clinical protection against the disease. In the case of natural immunity, this is unlikely to be the case, because the immune response to the whole virus is quite antigenically diverse and robust. Several studies, to which I referred in a prior declaration, are indicating that this natural immune response is *more robust* than vaccine immunity against emerging variants of concern.

28. For example, a recent Israeli study quoted in my original declaration demonstrates a 27× lower incidence of infection with Delta Variant. In another example, a recent CDC publication demonstrates an attack rate of 0% for Gamma Variant in COVID-recovered

persons vs. 60% in fully vaccinated persons: https://wwwnc.cdc.gov/eid/article/27/10/21-1427_article. These are striking clinical results that ought to concern the Court regarding Professor Zervos's claims to the contrary.

29. Dr. Zervos quotes a study by Demonbreun, *et al*. to make the point that some naturally immune persons do not make COVID-19 antibodies. But this is *not* the case with Ms. Norris, who has quite a robust and stable level of antibodies against COVID-19. And, again, up to 50% of fully vaccinated persons, depending on the brand of vaccine they received, do not mount an adequately protective immune response.

30. In my opinion, Dr. Zervos is again obfuscating the issue deliberately to confuse the Court – because though some infected and vaccinated persons, both, do not generate antibodies (in fact more vaccinated than infected, as the data demonstrate), it is simply not the case in Ms. Norris's situation, where she has a robust and stable level of blood antibodies.

31. Dr. Zervos goes on to state that he disagrees with my declaration statement "that it is 'incorrect and irrelevant to claim that any *additional* level of protection afforded the subset/class of COVID-recovered persons by an added vaccination justifies a mandate.'" The basis for the Professor's disagreement is illogical and flawed. The metric of comparison applicable to Ms. Jeanna Norris is whether she is *at least equally immune* when compared to the persons considered fully vaccinated by MSU.

32. Though it is possible that naturally infected persons might gain some marginal added benefit from booster shots, as do very many vaccinated people, this is *not* the relevant comparison point vis-à-vis the MSU mandate. As I have delineated in my prior declaration, the only rational bar for comparison is set by the "susceptibility to subsequent infection" on the part of naturally immune with serological evidence of stable antibody levels *versus* those considered fully vaccinated by MSU. In that comparison, the preponderance of evidence points to equivalency of natural immunity, at minimum, if not its superiority as compared to the less effective vaccines such as the Chinese made Sinovac, which MSU accepts a sufficient vaccine for compliance with its policy.

33. In his rebuttal, Dr. Zervos again tackles the Kentucky study by Cavanaugh. It is my sincere hope, as I described it in my prior declaration, that the Court will appreciate that this study is strictly a comparison between re-infection rates in COVID-recovered persons versus COVID-recovered/vaccinated persons.

34. This is *not* the relevant bar with regards to the MSU mandate. There, the relevant comparison is between naturally immune persons and fully vaccinated persons' susceptibility to subsequent infection. As Ms. Norris's consulting physician, I have informed her that she may gain some marginal added benefit from a booster shot, as would many if not most vaccinated people. However, it is my opinion that from a mandate perspective this decision is a personal one and that the data do not justify a discriminatory practice between the COVID-recovered and fully vaccinated personnel. The preponderance of evidence demonstrates that Ms. Norris is equally if not better protected from subsequent infection than any fully vaccinated COVID-naïve person.

35. In fact, a careful analysis of the Kentucky data by my colleagues and me demonstrated that the number needed to treat (NNT) to prevent one additional COVID-19 infection per year in the COVID-recovered group is over 200. This compares to a NNT of only about 7 COVID-19 naïve persons to prevent one additional infection.

36. In my opinion, Dr. Zervos is misrepresenting the meaning of the Kentucky study in order to convince the Court that "added benefit" justifies MSU's discriminatory vaccine mandate policy, despite Ms. Norris's pre-established immunity, which the preponderance of evidence indicates is equal to if not better than many vaccine-induced immunity states.

37. Dr. Zervos asserts that the safety of the vaccine in COVID-recovered persons is well demonstrated. In stating as such, he ignores publications listed in my first declaration to the court from the UK that indicate a 2-4× higher incidence of adverse reactions in the COVID-recovered. Additionally, Professor Zervos does not appear to accept the 6.8% rate of adverse reactions requiring hospitalization in the COVID-recovered persons that I referenced in my prior declaration. It is unclear if Dr. Zervos simply assumes that these investigators' published results and statements are falsehoods. Certainly, Dr. Zervos does not seem to accept that complications in specific previously infected persons were totally avoidable and thus classified as medical "harm."

38. My patients Brandy McFadden and Everest Romney are two such examples, and the well-publicized cases of Christopher Sarmiento and Dr. J. Barton Williams are two others. Professor Zervos seems comfortable "pretending" that these COVID-recovered/vaccinated persons were not hospitalized with serious adverse reactions or died. It is as though vaccine-related hospitalization and death are somehow negligible or impossible in Dr. Zervos's over-zealous opinion of vaccine safety.

39. Based on Professor Zervos's attempt to convince the Court that the vaccine has little to no probability of "harming" anyone, I am compelled to provide the Court with an analysis of how a medical product that can be considered "safe" in an overarching sense can also do "harm" when used inappropriately and absent necessity. This simple ethical and patient safety analysis is a terrible omission in Dr. Zervos's rebuttal. In what follows I provide a clear description of overarching safety vs. patient-specific harm as it pertains to the COVID-19 vaccine. In a nutshell, a very safe product, when used inappropriately or in an untimely fashion, can cause serious or even deadly "harm" to unsuspecting persons.

40. I am in agreement with FDA and CDC officials, as well as Dr. Zervos, that the risk of severe adverse reactions and morbidity/mortality caused by the virus, on a per-person basis, is *far* higher than the risk, per-person, imposed by the vaccine. In this sense, as a general, overarching concept, the COVID-19 vaccine is "safe." In fact, every medicine has a risk-benefit ratio, and when the measured benefit outweighs the imposed risk, in a utilitarian balancing, the medicine wins FDA approval for use—as has been the case with the COVID-19 vaccines.

41. However, a person's *risk* of a complication from a medicine or medical device is not the same as *harm* from the medicine or medical device. Even a risk fully materialized is *not* necessarily to be classified as "harm."

42. Harm is done when an *avoidable* risk for a specific patient is not avoided or reasonably mitigated. In medicine, as in all human endeavors, avoidance or mitigation of risk takes two forms: 1) Establishment of medical necessity of a treatment prior to its delivery (i.e., establishing that the benefit to the patient from an offered treatment is real and necessary); and 2) mitigation of all known risks to the best of a provider's ability, if a likely beneficial treatment is offered.

43. As an example of the first risk-avoidance approach (i.e., establishment of medical necessity), no reasonable heart surgeon would offer a Coronary Bypass operation to a person with marginal or non-critical coronary artery disease. To do so would be malpractice. And, if a complication does occur as part of such an unnecessary procedure, no matter how expected an adverse event it might be as part of the treatment, in general, in this specific setting, where medical necessity is not present, the "complication" classifies as "harm"—and not as an "unavoidable and, thus, tolerable adverse event."

44. As an example of the second risk-avoidance approach (i.e., risk mitigation), no reasonable heart surgeon would open a patient's chest without first shaving and sterilizing the skin at the incision site. To do so would be to expose the patient to an unacceptable risk of a wound infection. And, in such a circumstance, if a wound infection does occur it would classify as "harm," because no reasonable mitigation was undertaken by the surgeon (i.e., sterilization of the skin with Betadine, etc.).

45. In the case of the COVID-19 vaccines, though from a general risk-benefit standpoint during this pandemic, the vaccines benefit the vast majority of Americans and are "safe" (i.e., the EUA vaccines have benefits that outweigh the risks, in general), it is not justifiable to override the above two approaches to risk avoidance/mitigation and adopt a "one-size-fits-all" approach for *every* American—especially because nearly 20-30% of Americans numbering in the millions are now in a distinct "class," where the preponderance of epidemiological evidence (as well as the fundamental tenets of immunology) demonstrates an absence of medical necessity (i.e., in COVID-recovered and already immune patients).

46. When a treatment mandate is imposed on such a specific class of Americans, against the will of many such persons, and when the mandate is charged with limiting the rights of these Americans to earning a livelihood and enjoying the social/civil benefits of being free Americans, the Court ought to query whether medical ethics are being violated. I submit that they are.

47. The following paper from CDC describing case studies for a catastrophic side-effect from COVID-19 infection and vaccination is instructive: https://wwwnc.cdc.gov/eid/article/27/7/21-0594_article.

48. In this paper, six patients are described, all of whom developed life-threatening hyperinflammatory MIS-C disease. Three of them developed this critical disease as a consequence of COVID-19 infection. The other three developed MIS-C following COVID-19 vaccination in the setting of having had a prior COVID-19 infection. The reason why this case series is instructive is that the three vaccinated persons with critical MIS-C disease almost certainly did not stand to gain any added benefit from the vaccination that triggered their complications—because they belonged to the specific class of COVID-recovered and already immune Americans, of which millions of our countrymen and women are members.

49. Thus, these 3 representative MIS-C complications were totally avoidable—and the fact that they were not avoided classifies them as "harm."

50. It is a certainty that these three cases of vaccine-associated injury in the COVID-recovered and already immune are not going to be isolated. When 80-100 million Americans, by a recent CDC estimate, are recently infected and already immune, whatever the vaccine complication rate may turn out to be—one in 1000, one in 10,000 or one in 1,000,000—when these complications actually materialize in individual Americans, they will be instances of totally avoidable complications and are, thus, rationally classified as medical "harm"—not negligible events, as Dr. Zervos seems to be attempting to convince the court.

51. It is critical for the Court to appreciate that even complications and harm that may be considered rare (on the order of one in tens or hundreds of thousands), if a treatment is proposed to be applied to a population of 320 million Americans, can easily be expected to lead to those adversely impacted *numbering in the thousands*. This is a critical numerical consideration Dr. Zervos makes no attempt to account for in his analysis.

52. In summary, the idea of "Safety" is a risk-benefit definition. But patient-specific "Harm" can be done even with safe medical treatments, like the COVID-19 vaccines. What protects Americans from harm are application of the medical ethical principles of medical necessity (i.e., beneficence) and risk mitigation (i.e., non-maleficence). These concepts appear foreign to Professor Zervos's second declaration, and this fact ought to concern the Court for the well-being of Ms. Jeanna Norris and millions of other Americans in harm's way from a mandatory vaccine.

53. Additionally, the court ought to know that the European Union Parliament recently set criteria for their COVID-19 passport system: https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690618/EPRS_BRI(2021)690618_EN.pdf.

54. In fact, these EU criteria accept evidence of COVID-recovery (i.e., either a prior positive test or positive COVID-19 antibodies) or vaccination as a pass. Even hard-hit countries like Italy are *not* mandating vaccination of the COVID-recovered and provide them a pass. Though some have claimed that this is related to a vaccine shortage in Europe, the Italians have abundant access to vaccines and yet follow the rational guidelines set by the EU parliament not a blanket vaccine-enforcement strategy.

55. Finally, I find it extremely unfortunate to express my opinion here that Dr. Zervos's 11th-hour rebuttal to my prior declaration is a fundamentally biased and teleological document designed to mislead the Court on the crux of the matter at hand: that MSU's vaccine mandate is being imposed on Ms. Jeanna Norris in a setting where she is not only robustly and stably immune to SARS-CoV-2, but also where the preponderance of epidemiological studies are indicating that she is at least equally protected as compared to the separate least-protected group complying with MSU's vaccination policy (e.g., those vaccinated using the Chinese-made Sinovac or J&J's Adenoviral vaccine).

56. I find Professor Zervos's terrible obfuscation of the facts for the Court, by an American academic physician, quite disturbing—and I can only hope that the Court accepts my position about the need for greater circumspection than that offered by Dr. Zervos's near-theological defense of "one-size-fits-all" vaccination of the already immune.

57. I will reiterate for the Court my strong opinion that Ms. Norris is COVID-recovered and robustly immune to SARS-CoV-2 at this time. My judgment is based on having assessed her serologies serially and relative to hundreds of evaluations I have performed to date in Americans who have sought to determine the status of their susceptibility to COVID-19. As such, as her consulting physician, it is my opinion that Ms. Norris poses no more a risk of harm to herself or the MSU community than any fully vaccinated COVID-naïve MSU community member with the least effective vaccine product that is acceptable to the University. Additionally, given that relative to MSU members considered "fully" vaccinated, there is no reasonable medical necessity in vaccinating Ms. Norris against her will, it is my opinion that she is only being exposed to the risk of potential irreparable harm.

58. Therefore, I see no ethical or rational justification for anyone to demand or allow a forced vaccination on Ms. Norris, at risk of loss of employment. It is my opinion that the MSU administration and the federal agencies like CDC have deviated badly from proper medical behavior by not allowing automatic exemption from vaccinations on the basis of serologically demonstrable evidence of COVID-recovery and immunity.

59. I provide this response to Dr. Zervos's last-minute rebuttal, as a physician-immunologist with experience in the care of critically ill patients, pre-hospital care and consultation to many COVID-19 patients, and extensive recent experience in evaluation of COVID-19 antibody serologies in at least hundreds of Americans thus far. Additionally, I provide my declarations as an immunologist with detailed knowledge and understanding of antibody immunity and the dynamics of T- and B-cell responses to foreign antigens, including viruses—both as a basic immunologist and a physician.

I hereby declare under penalty of perjury under the laws of the United States of America that the following is true and correct (28 U.S.C. § 1746):

/s/ Hooman Noorchashm DATED: 9/21/21
Hooman Noorchashm MD, PhD
(electronic signature from the airport en route to Kalamazoo, MI)